Appendix B

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1.0 Scope:

1. The purpose of instituting Layer of Protection Analysis (LOPA) is to reduce the risk of accidental releases.
2. The use of the LOPA methodology will enhance the current Process Hazard Analysis (PSM PHA) activity and the LOPA methodology will be imbedded in the existing PSM PHA procedures.
3. LOPA is a semi-quantitative risk assessment methodology. It provides a method for evaluating the risk of hazard scenarios and comparing it with risk tolerance criteria to decide if existing safeguards are adequate, and if additional safeguards are needed.
4. LOPA can be viewed as an extension of PHA. Typically, it is applied after a PHA has been performed. LOPA builds on information developed in the PHA.
5. With LOPA, safeguards are evaluated for two key characteristics: 1) whether the safeguard is effective in preventing the scenario from reaching the consequence and 2) whether the safeguard is independent of the initiating event and the other Independent Protection Layers (IPLs).

2.0 LOPA Implementation Plan:

1. A qualified employee will enroll for LOPA training by an accredited training provider such as PrimaTech or Process Improvement Institute.
2. The employee trained in LOPA methodology will facilitate LOPA analysis of our VCM and VAM process areas along with our PSM PHA procedure.
3. LOPA will be included in the SOP for PSM PHA in order to be used with all future scheduled PHA activities as part of the standard methodology.
4. Implementation of the resulting recommendations utilizing the LOPA methodology will be completed in accordance with the SOP's used for implementing PHA recommendations.
5. Any new projects will trigger a PHA according to the standard procedures for new projects and use of the LOPA methodology will be part of the PHA.

3.0 Attachments:

1. Process Hazard Analysis procedure with LOPA revision

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